



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,828	06/08/2005	Jae Sung Sim	0465-1354US1	8667
2252	7590	08/15/2008	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			NALVEN, EMILY IRIS	
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			3744	
NOTIFICATION DATE		DELIVERY MODE		
08/15/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/537,828	Applicant(s) SIM ET AL.
	Examiner EMILY I. NALVEN	Art Unit 3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 09 January 2008.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-35 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Receipt of Applicant's amendments filed on Jan. 9, 2008 are acknowledged.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-8 and 14** are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US Patent No. 5,706,671).

In regard to claim 1, Lee et al. teach a refrigerator (10) (see Fig. 1) comprising a freezing chamber (3a) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), a refrigerating chamber (3b) at a side of the freezing chamber (3a) (see Fig. 1), a barrier (2) between the freezing chamber (3a) and the refrigerating chamber (3b) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), the barrier (2) having a refrigerating chamber cold air passage (passage between 8 and 8b) formed therein (col 1 lines 28-31).

Lee et al. also teach a partition plate (6b) for compartmentalizing a freezing chamber cold air passage (passage between 8 and 8b) in rear of the freezing chamber (3a), an evaporator (4) (see Fig. 1).

Lee et al. also teach a partition wall (rp) between the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air passage (7b) (see annotated Fig. 1 below), the evaporator (4) passing through the partition wall (rp) such that the evaporator (4) is exposed to the freezing chamber cold air passage and the refrigerating chamber cold air passage (see annotated Fig. 1 below). The evaporator (4) is directly exposed to the freezing chamber (3a) and separated from the freezing cover by the casing of the evaporator (6a) (see annotated Fig. 1 below). The piping of the evaporator (4) and lower portion of the evaporator passes through the back end of the refrigerating chamber (3b) passing through the very right bottom end of the partition wall (see Fig. 1). A pipe is considered to be a hollow cylinder used to convey a medium meeting the limitations of a passage which is an opening used to convey something.

Lee et al. also teach a fan (5) mounted over the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air passage (7b) (see Fig. 1 and col 1 lines 22-23) for discharging cold air flowing through respective cold air passages (7b, 8) to the freezing chamber (3a) and the refrigerating chamber (3b), respectively (see Fig. 1). The fan (5) forces air into the freezing chamber (3a) and refrigerating chamber (3b) using the partition plate (6b) to direct the airflow of the coming from the fan (5). It is presumed that the fan

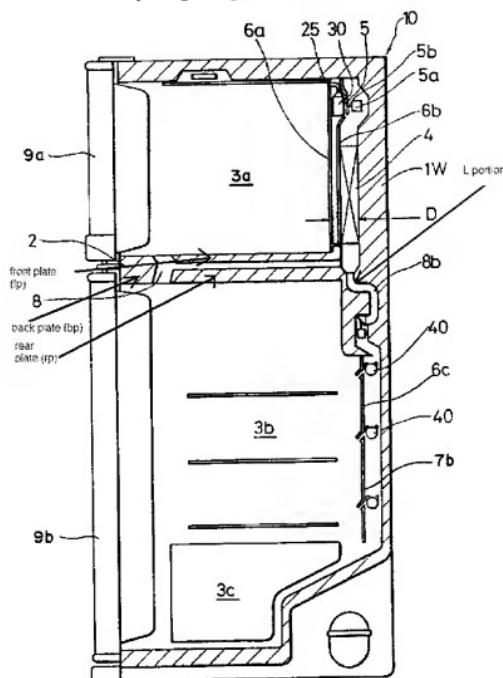
(5) is mounted over both passages and there is only one fan in the system, not two separate fans as the language of the claim indicates "a fan" in the singular.

In regard to claim 2, Lee et al. teach the refrigerator (10) wherein the evaporator (4) includes a first part exposed (exposed through vent 6a – see Fig. 1) to the freezing chamber cold air passage (passage between 8 and 8b) (see Fig. 1) and a second part (8b) exposed to the refrigerating chamber cold air passage (7b) (see Fig. 1). The face of the evaporator adjacent to the vent 6a is exposed to the chamber cold air passage via the duct 8. The second part (8b) tubing extends from the bottom side of the evaporator (4) to enter the refrigerating chamber cold air passage (7b).

In regard to claim 3, Lee et al. teach the refrigerator (10) wherein the first part (6a) is larger than the second part (8b) (see Fig. 1). The surface area of the first part (6a) facing the freezing compartment (3a) is larger than the surface area of the second part (8b) facing the opening to the refrigerating compartment (3b) (see Fig. 1).

In regard to claim 4, Lee et al. teach the refrigerator (10) wherein an outer surface of the first part (6a) and the second part (8b) is separated by the partition wall (rp) for preventing the cold air flowing through the respective parts from mixing with each other (see Fig. 1).

F I G. 1



In regard to claim 5, Lee et al. teach the refrigerator (10) wherein the partition plate (rp) includes a front plate (fp) and a back plate (bp) to form a cold air passage (see passage between fp and bp connected between passage 8) between the plates (fp, bp) (see annotated Fig. 1 above).

In regard to claim 6, Lee et al. teach the refrigerator (10) wherein the front plate (fp) has a plurality of cold air discharge openings (opening at 8 and opening at

8b) formed therein (see annotated Fig. 1 above). The front plate has an opening to let air exchange between the refrigerating chamber (3b) and freezing chamber (3a) via opening 8. There is a second opening above 8b to let air exchange with the fan and evaporator (4) as seen in annotated Fig. 1 above.

In regard to claim 7, Lee et al. teach the refrigerator (10) wherein the back plate (bp) has an opening in an upper part thereof (into 8b) and the fan (5) is provided adjacent to the openings (8, 8b) (see Fig. 1). The fan (5) is adjacent via the evaporator (4) (see annotated Fig. 1 above).

In regard to claim 8, Lee et al. teach the refrigerator (10) wherein the partition plate (1w) has openings (8, 8b) in a lower part thereof to form cold air suction openings (see annotated Fig. 1 above). The front plate has an opening to let air exchange between the refrigerating chamber (3b) and freezing chamber (3a) via opening 8. There is a second opening above 8b to let air exchange with the fan and evaporator (4) as seen in annotated Fig. 1 above.

In regard to claim 14, Lee et al. teach the refrigerator (10) wherein the barrier (2) has cold air suction openings (8 – entering into freezing chamber 3a and a second entering into refrigerating chamber 3b) in a lower part of a refrigerating chamber (3b) side thereof in communication with the refrigerating chamber cold air passage (7b) (see Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3744

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

- 4. Claims 9-13 and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671) in view of Kim (US Patent No. 6,112,546).

In regard to claim 9, Lee et al. teach the refrigerator (10) wherein there is fan (5) (see Fig. 1 and col 1 lines 22-23) but do not explicitly teach that it is a cross flow fan. Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claim 10, Lee et al. teach the refrigerator (10) wherein the fan (5) has one side exposed to the freezing chamber cold air passage (8) (via the freezing chamber 3a and indirectly through the louver 6a) and the other side exposed to the refrigerating chamber cold air passage (7b) (via louver 6a) (see Fig. 1). Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claim 11, see the rejection for claims 4 and 20.

In regard to claims 12 and 26, Lee et al. teach the refrigerator (10) wherein the refrigerating chamber cold air passage (7b) has a cold air discharge opening (6a) above a part adjacent to the fan (5) (see Fig. 1). Kim explicitly teaches placing a cross flow fan (304, 402 in combination) in a refrigerator system (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

In regard to claims 13 and 27, Lee et al. teach the refrigerator (10) wherein the cold air discharge opening (6a) has a damper (7a) provided thereto for opening/closing the cold air discharge opening (6a) (see Fig. 6).

In regard to claim 25, Lee et al. teach the refrigerator (10) wherein the fan (5) in the freezing chamber cold air passage (between 8 and 8b) is an axial flow fan (col 2 lines 15-29). However, Lee et al. do not explicitly teach a second fan.

Kim explicitly teaches placing a cross flow fan (304) in a refrigerating chamber (col 4 lines 1-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the cross flow fan as taught by Kim in place of the fan as taught by Lee et al. because the cross flow fan improves the air flow and efficiency of the entire refrigeration system.

5. **Claims 15 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671) in view of Yoshikawa et al. (US Patent No. 4,891,952).

In regard to claims 15 and 29, Lee et al. teach the refrigerator wherein there is an evaporator (4) (see Fig. 1) but do not explicitly teach that it is an one layered fin-tube type heat exchanger. Yoshikawa et al. explicitly teach a fin-tube type heat exchanger (8) (col 4 lines 22-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to place the heat exchanger as taught by Yoshikawa et al. as the evaporator as taught by Lee et al. to improve the efficiency and heat transfer of the system and thus reduce operational costs.

6. **Claims 16-24 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671).

In regard to claim 16, Lee et al. teach a refrigerator (10) (see Fig. 1) comprising a freezing chamber (3a) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), a refrigerating chamber (3b) at a side of the freezing chamber (3a) (see Fig. 1), a barrier (2) between the freezing chamber (3a) and the refrigerating chamber (3b) (see Fig. 1 and col 2 lines 66-67 and col 3 lines 1-3), the barrier (2) having a refrigerating chamber cold air passage (passage between 8 and 8b) formed therein (col 1 lines 28-31).

Lee et al. also teach a partition plate (6b) for compartmentalizing a freezing chamber cold air passage (passage between 8 and 8b) in rear of the freezing chamber (3a), an evaporator (4) (see Fig. 1).

Lee et al. also teach a partition wall (rp) between the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air passage (7b) (see annotated Fig. 1 below), the evaporator (4) passing through the partition wall (rp) such that the evaporator (4) is exposed to the freezing chamber cold air passage and the refrigerating chamber cold air passage (see annotated Fig. 1 below). The evaporator (4) is directly exposed to the freezing chamber (3a) and separated from the freezing cover by the casing of the evaporator (6a) (see annotated Fig. 1 below). The piping of the evaporator (4) and lower portion of the evaporator passes through the back end of the refrigerating chamber (3b) (see Fig. 1).

Lee et al. also teach a fan (5) mounted over the freezing chamber cold air passage (passage between 8 and 8b) and the refrigerating chamber cold air passage (7b) (see Fig. 1 and col 1 lines 22-23) for discharging cold air flowing through respective cold air passages (7b, 8) to the freezing chamber (3a) and the refrigerating chamber (3b), respectively (see Fig. 1). The fan (5) forces air into the freezing chamber (3a) and refrigerating chamber (3b) using the partition plate (6b) to direct the airflow of the coming from the fan (5). However, Lee et al. do

not teach using multiple fans. It would have been obvious to one of ordinary skill in the art at the time of the invention to make a second fan in the freezing chamber to force more cold air to circulate into the chamber and better cool the system.

In regard to claim 17, Lee et al. teach the refrigerator (10) wherein the freezing chamber cold air passage (between 8 and 8b) and the refrigerating chamber cold air passage (7b) are in communication with each other (see Fig. 1) at one side thereof and a damper (6c) is provided in a part of the communication is made (see Fig. 1 and col 1 lines 27-29). The freezing cold air passage and refrigerating chamber cold air passage are in thermal communication with each other via duct 8b and through the interior of the refrigerating chamber (3b). Wall (6c) acts as a damper in addition to partition plate (6b) (see Fig. 1).

In regard to claim 18, see the rejection for claim 2.

In regard to claim 19, see the rejection for claim 3.

In regard to claim 20, see the rejection for claim 4.

In regard to claim 21, see the rejection for claim 5.

In regard to claim 22, see the rejection for claim 6.

In regard to claim 23, see the rejection for claim 7.

In regard to claim 24, see the rejection for claim 8.

In regard to claim 28, see the rejection for claim 14.

Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US Patent No. 5,706,671) in view of Seiki et al. (JP Patent 55-75138).

In regard to claims 30-35, Lee et al. teach the refrigerator (10) with the evaporator (4) (see Fig. 1) but doesn't explicitly teach an L shape. The piping of the evaporator is considered to be a hollow cylinder used to convey a medium meeting the limitations of a passage which is an opening used to convey something. Seiki et al. teach evaporators making an bended shape (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to place an evaporator with an bend as taught by Seiki et al. in the refrigerator as taught by Lee et al. in order to improve the efficiency of the evaporator and more evenly distribute the heat exchange across the surface of the refrigerator.

Response to Arguments

7. Applicant's arguments filed on Jan. 9, 2008 have been fully considered but they are not persuasive. The Applicant states there are no arguments regarding the previous Office Action and has amended the claims. Response to the newly amended claims is addressed above. Additionally, the evaporator and evaporator piping passing through the freezing and refrigerating chambers is seen in Fig. 1 and further explained in the above rejection of claims 1 and 16.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Iris Nalven whose telephone number is 571-272-3045. The examiner can normally be reached on Monday - Thursday 8 AM - 5:30 PM and on alternate Fridays 8 AM – 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cheryl J. Tyler can be reached on 571-272-4834 or Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily Iris Nalven
/Emily Iris Nalven/
Art Unit 3744
April 25, 2008

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744